IN THE CLAIMS

1. (Previously Presented) A position sensor according to the transit time principle of a mechanical-elastic wave, said sensor comprising:

a waveguide made of electrically conductive material;

a detector coil in a detector range being arranged coaxially on the waveguide;

a position magnet moveable along the waveguide; and

a flux guide unit being assigned to said detector coil.

2. (Previously Presented) The position sensor under Claim 1 wherein said waveguide possesses a solid cross-section.

3. (Previously Presented) The position sensor according to claim 1 wherein said waveguide has a solid cross section through an entire waveguide measurement range.

4. (Previously Presented) The position sensor according to claim 1 wherein said detector coil is also a part of a detector arrangement just like a detector circuit.

5. (Currently Amended) The position sensor according to claim 1 wherein said flux guide unit of [[the]] <u>said</u> detector coil is assigned so that [[it]] <u>said flux guide unit</u> simultaneously shields [[the]] <u>said</u> detector coil against undesired external magnetic fields.

6. (Currently Amended) The position sensor according to claim 1 wherein a magnetic flux path of the magnetic flux enabled by [[the]] said flux guide unit encloses [[the]] windings of [[the]] said detector coil at least once including [[the]] said waveguide in the flux path.

7. (Currently Amended) The position sensor according to claim [[1]]6 wherein said magnetic flux path enabled by [[the]] said flux guide unit surrounds the entire detector coil.

8. (Currently Amended) A position sensor according to claim 1 further including ~~the transit time principle of a mechanical-elastic wave, said sensor comprising~~:

~~a waveguide;~~

~~a detector coil arranged on the waveguide~~;

~~a position magnet movable along the waveguide~~;

an electrical return, at least in the axial range of the detector coil of the return, is coaxially arranged externally around the detector coil.

9. (Previously Presented) The position sensor under Claim 8 wherein said electrical return consists of electrically conductive and also magnetic shielding material with a permeability of $\mu>1$.

10. (Previously Presented) The position sensor under Claim 9 wherein said electrical return exhibits a completely enclosed cross-section.

11. (Currently Amended) The position sensor according to claim 8 wherein [[a]] said flux guide unit encloses [[the]] said detector coil.

12. (Previously Presented) The position sensor according to claim 8 wherein said detector coil is constructed as a self-supporting coil.

13. (Previously Presented) The position sensor according to claim 8 wherein said detector coil is wrapped on a coil shell in a longitudinal view.

14. (Currently Amended) The position sensor according to claim 8 wherein [[a]] said flux guide unit having an opening for said waveguide and an opening for electrical conductors connected to said detector completely encloses said detector coil.

15. (Currently Amended) The position sensor according to claim 11 wherein said flux guide unit is primarily cylindrically shell-shaped with two opposing openings in the enclosed front side for entry and exit of said waveguide and a conductor opening for the passage of the electrical conductor for [[the]] said detector coil, in which the conductor opening is found in [[the]] a cylindrical surface area of [[the]] said flux guide unit.

16. (Previously Presented) The position sensor according to claim 15 wherein said cylindrical flux guide unit consists of a cup-shaped body with an open front side and a suitable cover on the frontal opening.

17. (Previously Presented) The position sensor according to claim 15 wherein the cylindrical housing consists of two half-cylindrical shells.

18. (Previously Presented) The position sensor according to claim 14 wherein said flux guide unit consists of a ferromagnetic material with a permeability of $\mu>10$.

19. (Currently Amended) The position sensor according to claim 14 wherein said flux guide unit consists of a highly permeable alloy[[,]] out of ferrite.

20. (Previously Presented) The position sensor according to claim 8 wherein a direct current is flowed through said waveguide.

21. (Canceled)

22. (Previously Presented) The position sensor according to claim 8 wherein an axial direction of said detector coil corresponds with a longitudinal direction of said waveguide.

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Currently Amended) The position sensor according to claim [[1]] 6 wherein said magnetic flux path enabled by [[the]] said flux guide unit surrounds [[the]] said detector coil in at least one axial layer surrounding said detector coil.

27. (Currently Amended) The position sensor according to claim 8 wherein [[a]] said flux guide unit encloses [[the]] said detector coil along an axial layer of [[the]] said detector coil.

28. (Currently Amended) The position sensor according to claim 8 wherein [[a]] said flux guide unit coaxially encloses [[the]] said detector coil along an axial layer of [[the]] said detector coil.

29. (Previously Presented) The position sensor according to claim 14 wherein said flux guide unit is formed of a ferromagnetic material with a permeability of $\mu>1,000$

30. (Previously Presented) The position sensor according to claim 14 wherein said flux guide unit is formed of a ferromagnetic material with a permeability of $\mu>10,000$.

31. (New) A position sensor according to the transit time principle of a mechanical-elastic wave, said sensor comprising:

a waveguide made of electrically conductive material;

a detector coil in a detector range being arranged coaxially on the waveguide;

a position magnet moveable along the waveguide; and

a flux guide and shielding unit being selectably formed and assigned to said detector coil to shield the detector coil from stray magnetic fields.